

The Information and Knowledge Objective
to improve understanding of oceanic fish resources of the WCP warm pool

addressed by ↓

Component 1: Scientific Assessment and Monitoring Enhancement
which aims at providing improved scientific information and knowledge on the oceanic fish stocks and related ecosystem, and at strengthening the national capacities of Pacific SIDS in these areas

→ **Subcomponent 1.1 Fishery Monitoring, Coordination and Enhancement**



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→ **Subcomponent 1.2 Stock Assessment**



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Subcomponent 1.1 Fishery Monitoring, Coordination and Enhancement

Output 1.1.1 A template for national integrated monitoring programmes including logsheet, observer, port sampling and landing data collection and management; and provision of national data to the Commission

New Four new updates. Improved/ additional reporting (EEZ breakdown, best estimates for catch, more telex).

In Progress: Continual updates of the TUFMAN database and reporting system.

Comprehensive review underway: for robustness, data validation, formatting, reports and data entry.

New observer data module

Video training manual for TUFMAN

Future work

Data registry and vessel modules

Graphing module in reporting



T U F M A N
Tuna Fisheries Data Management System

Output 1.1.2 National monitoring systems based on the regional template for integrated monitoring, customised to meet national needs

Country	TUFMAN	CES	Position support	Equip.	Visits	Attachments	Country	TUFMAN	CES	Position support	Equip.	Visits	Attachments
Cook Is.	✓	✓	✓			✓	PNG		✓			✓	✓
FSM	✓	✓			✓	✓	Samoa		✓		✓	✓	+
Fiji	✓	✓		✓	✓	✓	Solomon Is.	✓	✓	✓		✓	✓
Kiribati	✓	✓		+	✓	✓	Tokelau	+	✓				
Marshall Is.	✓	✓	✓		✓	✓	Tonga	✓	✓		✓	✓	+
Nauru	✓	✓		✓	✓	✓	Tuvalu	✓	✓			✓	
Niue	✓	✓			✓		Vanuatu	✓	✓	✓		+	+
Palau	✓	✓	✓	✓	✓	✓			✓ = done	+ = planned			

Future Work

- Complete National Tuna Data Procedures Documents
- In-country data audits

Subcomponent 1.1 Fishery Monitoring, Coordination and Enhancement

Output 1.1.3 A regional monitoring coordination capacity, to develop regional standards such as data formats, and to provide a clearing house for information on fishery monitoring

Completed

- Second Tuna Data Workshop (April 08)

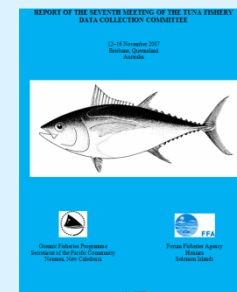
<http://www.spc.int/oceanfish/Html/Meetings/TDW2/index.htm>

- Monitoring Newsletter – “Fork Length # 8”

<http://www.spc.int/oceanfish/Docs/Statistics/fork.htm>

- 7th Data Collection Committee Report with revised and translated data forms available on-line

<http://www.spc.int/oceanfish/Html/Statistics/Forms/index.htm>



In Progress

Next edition of ForkLength

Future Plans

Third Tuna Data Workshop, Noumea – April 09

Data Collection Committee (DCC) – Dec 09

Subcomponent 1.1 Fishery Monitoring, Coordination and Enhancement

Output 1.1.4 Training of national monitoring staff, particularly monitoring coordinators, observers and port samplers

Completed

- Basic observer training: Palau (Sub-regional), PNG, Solomons, French Polynesia
- Refresher training: Fiji
- NTDC Attachments to SPC: FSM, RMI, Solomons
- Observer Coordinator Attachments to SPC: Fiji and Solomons
- 8th Observer Coordinators Workshop, Palau, July 2008.



In Progress

- Pacific Island Regional Fisheries Observer (PIRFO) competency-based-training (CBT) standards (incorporating CBT standards for port samplers) – to be published online by end of 2008

Future work

- National Tuna Data Coordinator attachments to SPC (Samoa, Cooks, Tonga)
- Observer Coordinator attachments to SPC (PNG)
- Basic Observer training courses as required
- CBT standards for observer debriefers and observer trainers

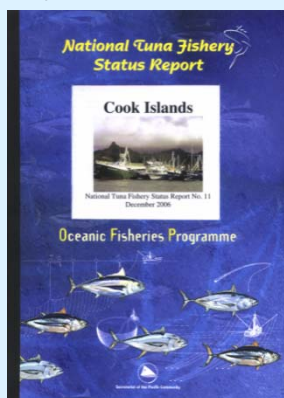
**Note: Many of the observer training activities achieved with PROCFISH co-funding*

Subcomponent 1.2 Stock Assessment

Output 1.2.1 National oceanic fisheries status reports prepared collaboratively with national scientific staff

Activity 1.2.1.1 Prepare 6 National Oceanic Fisheries Status Reports annually

- * National Tuna Fisheries Status Reports (NTFSRs) provide comprehensive, regular assessments of status and prospects of oceanic fisheries for PICT fishery departments
- * They include summaries of historical and recent trends in fisheries, interpretation of stock assessments in the context of national fisheries, and other analyses tailored to the specific needs identified by each PICT.
- * NTFSRs are now being restructured to feed required advice directly into the FFA EAFM process and will only be undertaken for countries implementing or updating their EAFM



Completed	Under Review	In Progress
Palau	FSM	Kiribati
Niue		Samoa
Tonga		Nauru

Activity 1.2.1.2 Hold In-country Stakeholders Workshops for delivery of National Status Reports

In country stakeholder workshops have been attended in FSM (two), Nauru, Palau, Niue, Samoa, Kiribati (two), to facilitate the development and delivery of the NTFSRs and support the implementation of an EAFM.

Subcomponent 1.2 Stock Assessment

Output 1.2.2 Advice to Pacific SIDS on scientific issues in the work of the Commission

Activity 1.2.2.1 Provide contributions to briefs on scientific issues for Pacific SIDS for meetings of the Commission, the Scientific Committee and Science Working groups

Activity 1.2.2.2 Present scientific briefs to preparatory meetings of Pacific SIDS for the Commission

September 2007 - present:

1. Scientific presentations and advice were provided to the Western and Central Pacific Fisheries Commission (December, 2007) along with significant contributions to the associated brief from the Scientific Committee.
2. OFP staff participated in a workshop held at FFA Headquarters to review and plan management options analyses to support FFA members in WCPFC meetings during 2007.
3. Scientific presentations and advice provision to the USMLT meeting (March 2008) and FFA SWG (August 2008).
4. Scientific presentations and advice provision to the Scientific Committee of the WCPFC (August 2008)
5. Scientific presentations and advice provision to the Management Options Workshop (October 2007) and contributions to the associated brief.
6. Scientific advice provided at in-country EAFM consultations (FSM, Nauru, Kiribati, Samoa, Niue, Palau)
7. Development of a timetable for the provision of information to Pacific SIDS (developed in conjunction with FFA), in particular through the EAFM process

Activities over next 6 months:

1. SPC scientific contributions/presentations to the Management Options Workshop (October 2008) and the Commission (December 2008)

Subcomponent 1.2 Stock Assessment

Output 1.2.3 Training of national technical and scientific staff to understand regional stock assessment methods and interpret and apply the results and to use oceanographic data

Activity 1.2.3.1 Hold regional workshops on stock assessment methods and analysis of oceanographic impacts on fisheries

Completed (to October 2008)

Stock assessment scientist recruited

Extensive work on the development of workshop materials and other preparatory activities took place

Stock Assessment Workshop 1 held at SPC Noumea, 3rd – 14th July 2006.

Stock Assessment Workshops (Level 1 and 2) held at SPC Noumea, 25th June – 7th July 2007.

Stock Assessment Workshops (Level 1 and 2) held at SPC Noumea, 19th June – 4th July 2008.

*Next workshop scheduled for June 2009 (*funding dependant - Support letters needed)*



Subcomponent 1.2 Stock Assessment

2008 Stock assessment workshops, *Noumea*, 19th June – 4th July.

Brief overview

Objectives – Increase national capacities to use and interpret regional stock assessments, fisheries data and oceanographic information at the national level, to participate in Commission scientific work, and to understand the implications of Commission stock assessments

Design and Content – 2 workshops of 1 week each, for new and returning participants. Key themes included Background theory, Parameter Estimation, and Interpretation.

Theory sessions followed by computer lab sessions or group discussion/exercise sessions to reinforce concepts.

Outcomes – Tests, surveys and observation of participants indicated significantly increased understanding of stock assessment after both workshops. It represented further progress towards meeting the overall stock assessment related objectives of the OFMP.

Its longterm benefits will be lost without regular follow-up workshops, and other training/attachments of fisheries staff, and online revision.

****Report of the 2008 OFMP Stock Assessment Workshops now available:*
<http://www.wcpfc.int/sc4/>

As paper: WCPFC-SC4-2008/GN WP-6



Subcomponent 1.2 Stock Assessment

2008/09 Stock Assessment Workshops

Online training – greater participation needed!

After the 2007 workshop review identified an urgent need for the development of an online training/revision tool that would enable workshop participants to maintain and build their knowledge and understanding of stock assessment in between annual workshops, OFP-SPC sought and gained the following endorsement from FFA member countries

1. Endorsement by countries/territories for the development of the online training/revision facility.
2. A commitment by department heads to allow the workshop participants to devote at least $\frac{1}{2}$ a day per month to online training.
3. A commitment by participants themselves to undertake the training

Subsequently, OFP-SPC developed a preliminary online training website on which revision exercises and materials could be posted for workshop participants to access.

Two revision training exercises were undertaken in the period between the 2007 and 2008 workshops. Participation in the first exercise was reasonable (50%), but very poor in the second exercise (20%), and the exercises were ceased due to a lack of participation.

Given the resources devoted to the online training, OFP is seeking some reassurance that this endeavour will have better participation in future.

It was noteworthy that at the 2008 workshops, the three best performing participants had all taken part in both online revision exercises



Subcomponent 1.2 Stock Assessment

Output 1.2.3 Training of national technical and scientific staff to understand regional stock assessment methods and interpret and apply the results and to use oceanographic data

Activity 1.2.3.2 Attach national technical staff to SPC/OFP and other institutions to participate in Commission stock assessment work and preparation of national status reports

Activity 1.2.3.3 Train scientific counterparts in-country

September 2007 to present

Kiribati (x2), Palau and Niue provided staff for attachments associated with NTFSR development, with a further attachment from Samoa planned for November.

Occasionally some countries are unable to provide staff for NTFSR associated attachments.

Next 6 months

Attachments of national technical staff to OFP from Samoa and Marshall Islands (and potentially one other country) with timing being in accord with the development of NTFSRs for each of these.

It is also intended that training of scientific counterparts in country should occur in conjunction with visits by OFP staff for NTFSR stakeholder workshops, in instances where countries have identified a specific need (and staff member).

Subcomponent 1.3 Ecosystem Analysis

Output 1.3.1 Observer sampling and analysis of commercial fishery catches to determine trophic relationships of pelagic species in the WTP Large Marine Ecosystem

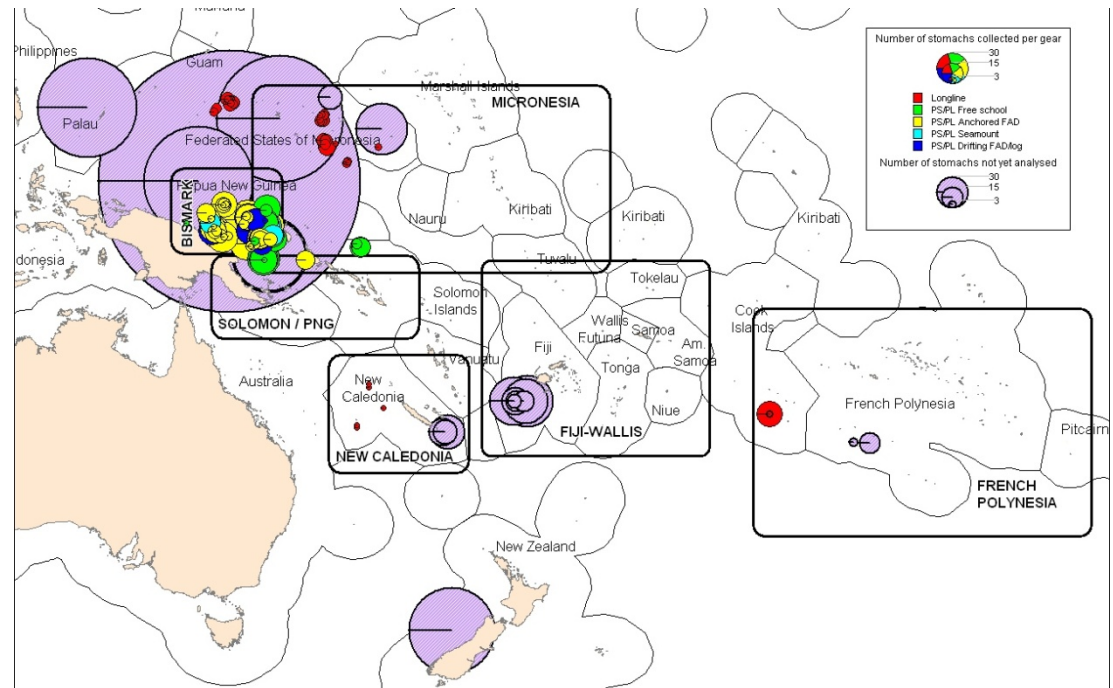
Activity 1.3.1.1 Collect observer-based sampling data (stomach content and tissue samples)

Collection of samples: **In progress**

3851 samples have been collected since the beginning of the project (3102 during tagging trips and 749 from the national observer programmes)

Reports: **Completed**

4 quarterly "Biological Sampling Newsletter" for the observers and port samplers presenting progress in sampling



Activity 1.3.1.2 Lab-based analysis of samples

Stomach content examination:

708 stomachs have been examined between Sept 2007 and Sept 2008. The stomach database now contains information from 4032 stomach contents of 71 different species

Isotope analysis:

Isotope data of the tropical tuna species have been compiled to create isomaps for the equatorial Pacific. They outline differences in isotope values between eastern and western Pacific, however they do not show differences in trophic levels. A scientific paper is in preparation.

In progress

Subcomponent 1.3 Ecosystem Analysis

Output 1.3.2 Collection and analysis of information on seamounts in the WTP warm pool

Activity 1.3.2.1 Hold seamount activity planning and review workshop

Seamount Planning workshop: 20-21 March 2006, SPC, Noumea

Completed

Report: Allain, Kirby & Kerandel, 2006. Seamount research planning workshop report. WCPFC-SC2-06/EB-IP-5.

Activity 1.3.2.2 Describe seamounts and analyse historical fishing patterns around seamounts

Seamount location: **Completed**

Scientific peer-review publication: Allain, Kerandel & al. 2008. Enhanced seamount location database for the western and central Pacific Ocean: screening and cross-checking of 20 existing datasets. Deep-Sea Research 155: 1035-1047. - Data are available to the countries

Examination of fisheries data: **In progress**

Telmo Morato is a specialist in seamount studies and accepted a 1-year spatial analyst position to investigate fishing patterns around seamounts examining CPUE, diversity, size & composition of the catch... in relation to seamounts. Telmo Morato started in October 2008.

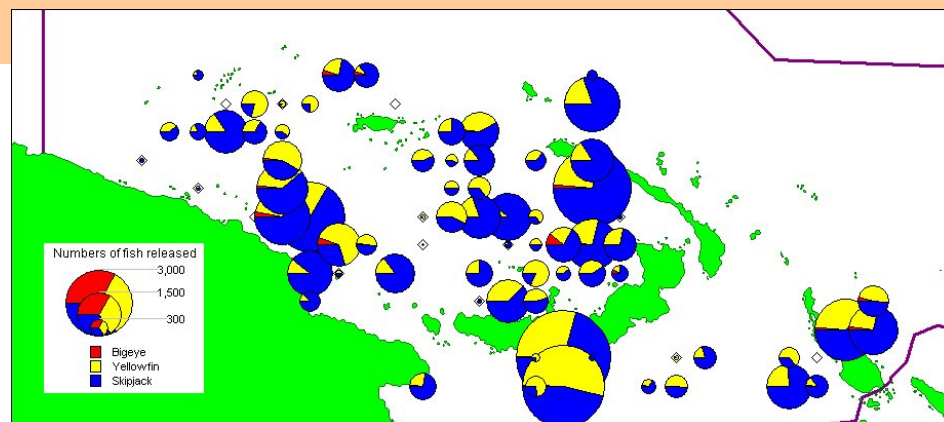
Subcomponent 1.3 Ecosystem Analysis

Output 1.3.2 Collection and analysis of information on seamounts in the WTP warm pool

Activity 1.3.2.3 Collect data at sea at selected seamounts, including tagging, trophic sampling and analysis

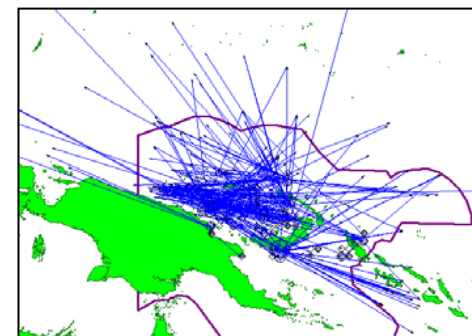
Tagging project: **To continue**

Phase 1 of the PTTP have been completed with 61,783 and 41,323 tuna tagged in PNG and Solomon waters with a respective percentage of recoveries of 13.43 and 11.28 %. Phase 2 of the PTTP started in June 08 and will cover in 5 month of time the waters of FSM, Palau, Philippines, Indonesia and also some additional parts of PNG. To date the total number of fish tagged is 125,948 for 10.73% of recoveries.



Reports: **To continue**

Summary reports for all cruises
Monthly tag return
Results presented at SC4,
First AT/ST analysis presented at the 2nd Int. Symp. on electronic tagging (Oct 07) and published as a sc. publication.



Activity 1.3.2.4 Support national scientist participation in a benthic biodiversity survey

Scientific cruise project:

After cancellation of IUCN cruise, IRD budget restrictions have resulted in the cancellation of the planned co-funded scientific cruise in 2008 in the Bismarck Sea (PNG) to study the influence of seamounts on benthic and pelagic ecosystems. No cruise on benthic biodiversity can be undertaken; this activity cannot be completed.

Subcomponent 1.3 Ecosystem Analysis

Output 1.3.3 Model-based analysis of ecosystem-based management options

Activity 1.3.3.1 Incorporate ecosystem data and information into existing ecosystem models and refinement of those models as necessary

Activity 1.3.3.2 Use enhanced models and data to assess ecosystem-based management options

Activity 1.3.3.3 Use enhanced models and data to assess management options targeted specifically at seamounts

Analysis of stomach examination data **In progress**

Progress on trophic structure qualitative models of pelagic ecosystems of different regions in the Pacific were presented by co-PIs at two meetings: PFRP-PI in Honolulu, Hawaii, Nov. 2007 and CLIOTOP in La Paz, Mexico, Dec. 2007. This work has been detailed into a publication that has been submitted in March 2008 to a peer-review paper for the special issue of the CLIOTOP meeting. **To continue**

Output 1.3.4 Estimates of levels of by-catch in WCPO oceanic fisheries

Activity 1.3.4.1 Review historical observer data and methodological development

Activity 1.3.4.2 Estimate of levels of by-catch

Reports: **Completed**

Lawson. 2006. Scientific aspects of observer programmes for tuna fisheries in the WCPO. WCPFC-SC2-2006/ST WP-1

Lawson. 2006. Observer coverage rates and reliability of CPUE estimates for purse seiners in the WCPO. WCPFC-SC2-2006/ ST IP-3

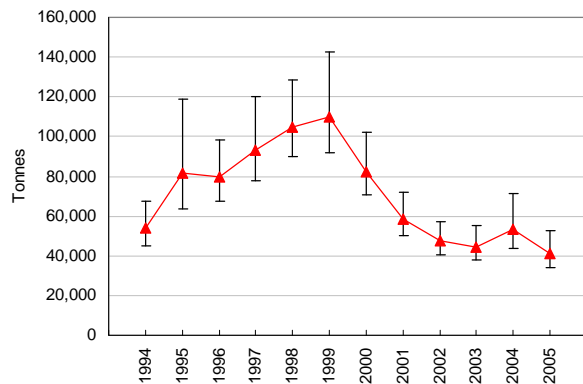
Oceanic Fisheries Programme - SPC. 2007. Estimates of annual catches in the WCPFC statistical area. WCPFC-SC3-2007/ST IP-2.

Oceanic Fisheries Programme - SPC. 2008. Estimates of annual catches in the WCPFC statistical area. WCPFC-SC4-2008/ST IP-1.

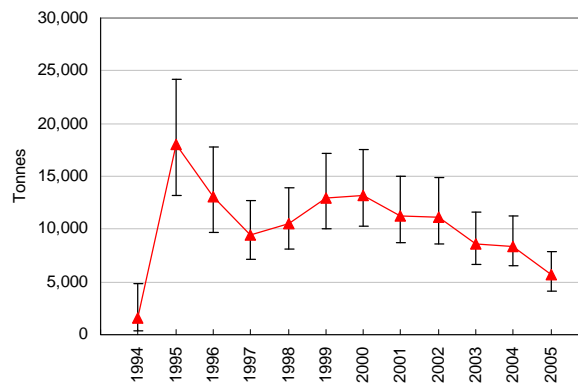
Further work on estimation methodology **to continue** during 2009.

Subcomponent 1.3 Ecosystem Analysis

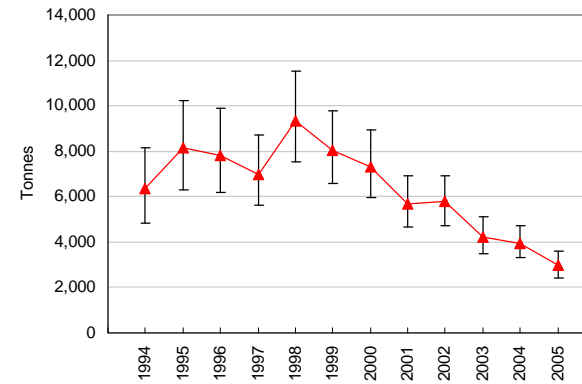
Blue Shark



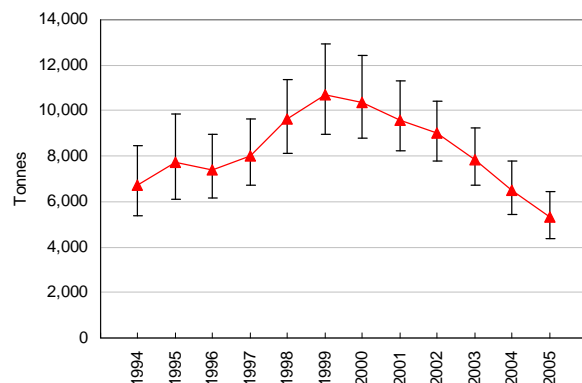
Silky Shark



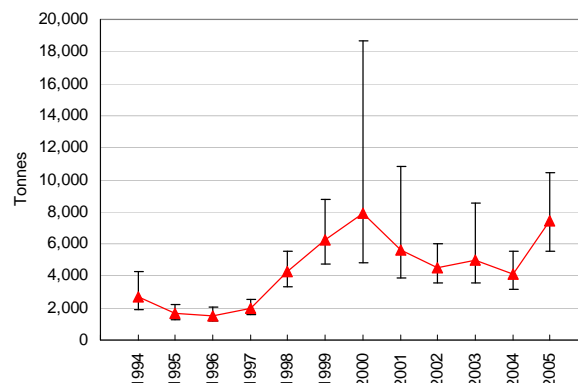
Oceanic Whitetip Shark



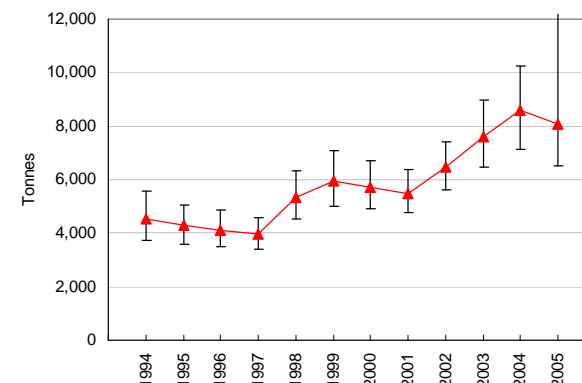
Mako Sharks



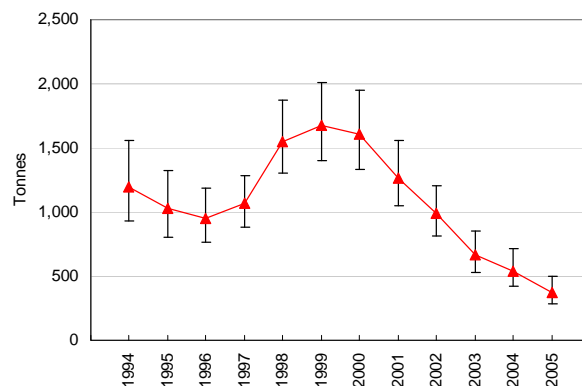
Common Dolphinfin



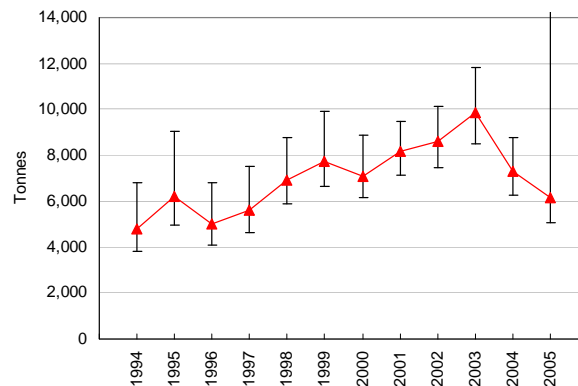
Escolars



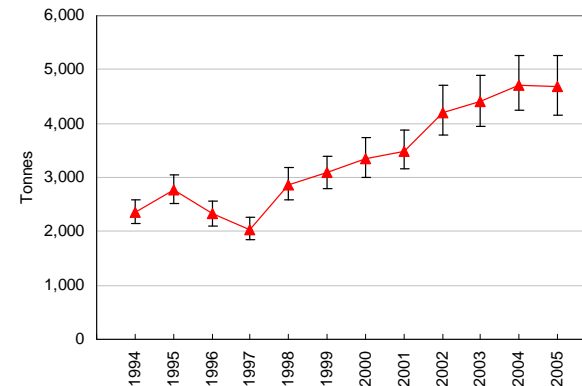
Oilfish



Opah



Wahoo



Subcomponent 1.3 Ecosystem Analysis

Output 1.3.5 Results of ecosystem analysis and proposals for long-term ecosystem monitoring and operationalisation of the ecosystem-based approach for use by the commission's Scientific Committee

Activity 1.3.5.1 Present results of ecosystem analysis to the Commission

Activity 1.3.5.2 Present information on national and regional implications of results of ecosystem analysis to Pacific SIDS

Activity 1.3.5.3 Attach national technical staff to SPC/OFP and other institutions to participate in ecosystem analysis

Report: Kirby. 2006. Ecological Risk Assessment. WCPFC-SC2-2006/EB WP-1.

Ecological Risk Assessment Workshop: August 2007, Honolulu

Completed / In progress

Methods in Ecological Risk Assessment were presented to national staff during SAW2, Stock Assessment Workshop in June-July 2007.

Completed / In progress